Dec. 5, 1950 M. S. BAKER ET AL 2,533,082

FOUNTAIN PEN CAP

Filed June 18, 1948

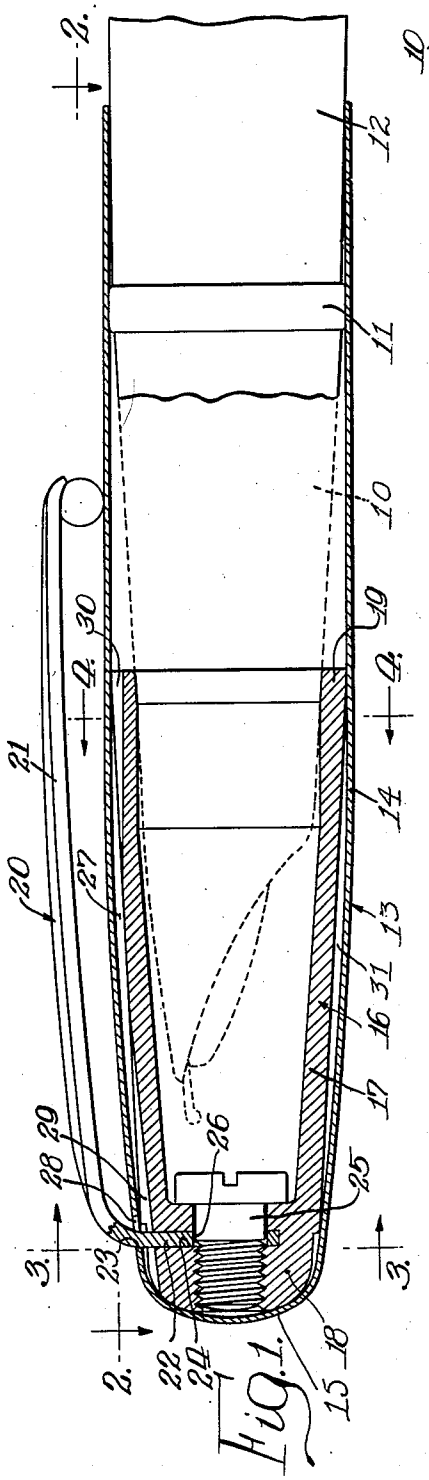

Fig. 1.

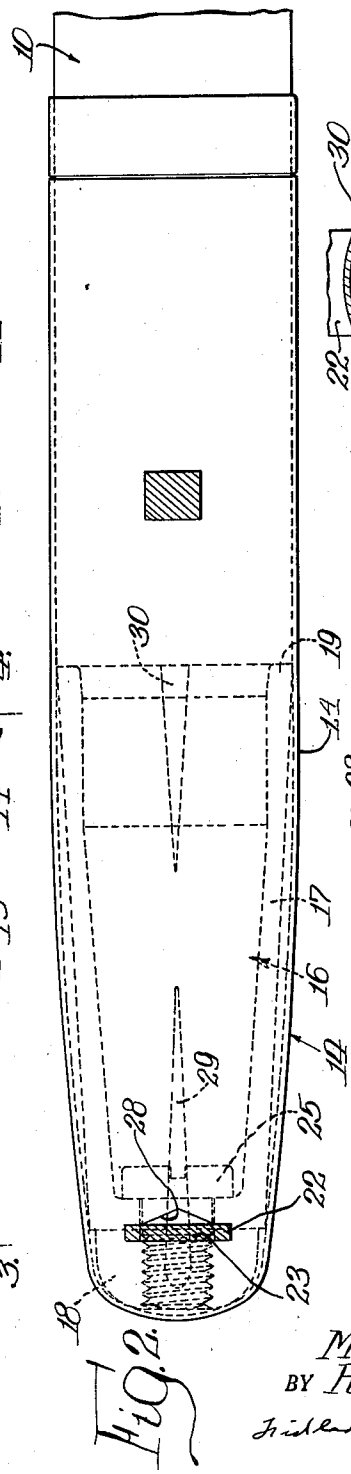

Fig. 2.

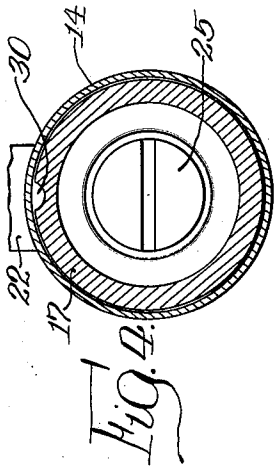

Fig. 4.

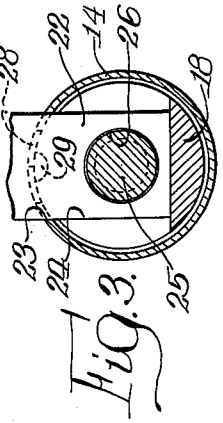

Fig. 3.

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FOUNTAIN PEN CAP

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5 Claims. (Cl. 120—42.01)

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This invention relates to fountain pen closure caps and has to do particularly with an improved closure cap of the slip-on type.

An object of the present invention is to provide a new and improved closure cap for a fountain pen.

Another object is to provide a closure cap for a fountain pen which may be applied to and removed from a fountain pen without causing an increase or decrease in the pressure of air within the cap.

Another object is to provide a fountain pen closure cap having a vent for maintaining the pressure of the air within the cap at atmospheric pressure during insertion or removal of the pen, which vent is substantially concealed.

A further object is to provide a fountain pen closure cap embodying an improved mode of attaching a pocket clip thereto.

A further object is to provide a fountain pen closure cap having a pocket clip attached thereto in such manner that the outer surface of the cap presents a substantially continuous and uninterrupted surface.

A still further object is to provide a closure cap for a fountain pen which is simple and inexpensive to manufacture and assemble, and in which the several members forming the cap are rigidly and positively secured together and are not readily subject to loosening and disarrangement in use.

Other objects and advantages of the invention will appear from the following description taken in connection with the appended drawings wherein:

Figure 1 is a side elevational view of a closure cap embodying the invention shown in position on the forward end of a fountain pen, certain of the parts of the cap being broken away and in section;

Fig. 2 is a view of a section taken along line 2—2 of Fig. 1;

Fig. 3 is a view of a section taken along line 3—3 of Fig. 1; and

Fig. 4 is a view of the section taken along line 4—4 of the cap of Fig. 1.

For the purpose of illustrating the present invention, a pen of the type having a hooded forward end is illustrated which pen is of the general type disclosed and claimed in United States Letters Patent to Baker, No. 2,223,541, although it will be apparent as the description herein proceeds, the cap is adapted for use with other types of fountain pens having a generally tapered writing end and a cap clutch ring. In the pen

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illustrated in the present drawings, the pen is provided with a tapered hood or shell 10 and with a cylindrical clutch ring 11 carried on the pen between the shell 10 and the barrel 12.

To enclose the writing end of the pen when the pen is not in use, a cap is provided which comprises an outer shell 13 preferably formed of metal and having a side wall portion 14 of generally elongated tubular form tapering at its outer end. The outer shell is closed at its outer end by an end wall portion 15 which is formed integrally with the tubular side wall portion and presents therewith a continuous unbroken exterior surface. The outer shell is adapted to telescope over the writing end of the pen and the inner portion is adapted to frictionally seat tightly over the clutch ring 11 to retain the cap in position on the pen. The cap is formed from resilient thin-walled material, as for example, stainless steel, and is so dimensioned at its forward cylindrical open end portion that, after suitable deformation to a slightly elliptical cross-section, it tightly grips the clutch ring 11 when in position on the pen.

Disposed within the outer shell is an inner shell 16 having a generally tubular side wall portion 17 open at its inner end and a thickened end wall portion 18 integral with the side wall 17 and serving to close the latter at its outer end. The inner shell 16 is of generally tapered form toward its outer or closed end and is of such length that it terminates inwardly short of the inner end of the outer shell. It is provided at its open inner end with a thickened wall portion 19 adapted to frictionally receive the tapered portion of the pen to completely enclose the writing end of the pen and to provide a seal which prevents the entry of air into the interior of the inner shell 16 when the cap is in position on the pen and thereby prevents evaporation of ink from the pen. The inner shell 16 is formed of any suitable material but preferably one which permits the shell to be formed by molding. For this purpose we have found synthetic plastic materials such as hard rubber, synthetic resins and other like materials suitable.

The inner shell is secured in the outer shell in such manner that it is rigidly held therein and does not become loosened or dislodged during use, and at the same time the mode of securing the shell members together is such as not to cause any interruption in the continuous surface of the outer shell member. To this end a pocket clip member 20, which it is customary to provide on a fountain pen closure cap, is employed as

an element of the means for attaching the inner and outer shell members. The pocket clip member may have any suitably shaped body 21 of elongated form and is provided with an inturned tongue or anchor portion 22 which extends through a slot 23 in the outer shell 14 and a slot 24 in the thickened end wall 18 of the inner shell 16. An anchoring element 25 extends through an opening 26 in the tongue 22 and is secured in the thickened end wall 18 to lock the tongue 22 in the inner shell 16 and thereby lock the inner shell in the outer shell. Preferably the anchoring element takes the form of a screw which extends through the anchor portion and is threaded into the wall 18.

Means are provided by the present invention for venting to atmosphere the interior of the closure cap during movement of the forward end of the pen into and out of the cap. Thus during the movement of the end of the pen into the cap, air which is displaced by the pen is expelled from the cap and there is no compression of air within the cap, even where the pen is inserted rapidly into the cap. The venting means also is effective to admit air into the cap during removal of the pen and thus prevent the establishment of a subatmospheric pressure within the cap as might otherwise result, especially when the pen is removed rapidly from the cap.

To the foregoing end, a vent passage 27 is provided between the inner and outer shells and which at one end leads to a vent opening 28 in the outer shell and at its other end communicates with the interior of the outer shell forwardly of the inner end of the inner shell 16. Thus, communication is provided between the atmosphere and the interior of the outer shell. It will be noted, however, that when the cap is in position on the pen, the vent passage 27 does not communicate with the space within the sealed inner cap but merely with the space between the outer cap and the pen; therefore, there is no passage of air into the interior of the inner shell when the pen is fully seated in the cap and evaporation of ink is substantially prevented. On the other hand, the interior of the inner shell is vented to atmosphere during the movement of the pen into the cap and until the pen is fully seated in the inner shell. Thus, any air which may be displaced by reason of the piston action of the pen in the outer shell is permitted to flow out of the cap and is not compressed therein. The vent passage 27 may be formed by providing a longitudinally-extending groove in the outer surface of the inner shell, but in the present illustrative embodiment the continuous groove is not necessary inasmuch as the outer shell is spaced from the inner shell except at the end portions of the latter. Accordingly, the passage is provided in part by the space 31 between the shells and in part by grooves 29 and 30 at the outer and inner end portions of the inner shell, respectively. The vent opening 28, for convenience, may be formed by a lateral enlargement of the slot 23 and in any event preferably is located under the clip body 21 so that it is substantially concealed and does not detract from the attractive appearance of the outer shell.

From the foregoing it will be seen that the present invention provides a fountain pen closure cap which may be applied to or removed from the pen rapidly without causing any substantial change in pressure of the air within the cap. The cap is vented to atmosphere during movement of the pen into the cap until the pen is substantially seated and during movement of the pen out of the cap substantially from the beginning of the outward movement. However, when the pen is fully seated in the cap, the writing end is completely enclosed and sealed and substantially no evaporation of ink can take place.

The cap is formed with a substantially unbroken and uninterrupted outer surface and presents a neat and attractive appearance. Moreover, the vent opening which leads out of the cap is disposed under the exterior portion of the pocket clip whereby it is substantially concealed and does not detract from the attractive appearance of the cap. The pocket clip is so secured to the cap that the securing means is entirely concealed thus contributing to the neat appearance of the cap.

The employment of the pocket clip as a portion of the means for securing the inner and outer shell members together provides a construction which is very simple in form and adapted for quick and easy assembly. In addition, the construction is such that the several members are locked securely against disarrangement. Thus, the pocket clip is positively held in the desired position relatively to the cap and cannot rotate about the cap as is sometimes found to be the case where it is secured by other types of fastenings. Furthermore, this invention provides a cap of the dual shell type which may be formed of a minimum number of readily formed members.

We claim:

1. A closure cap for a fountain pen of the type having a tapered writing end, said cap comprising an inner shell completely closed at its sides and at one end thereof and having an open end adapted to snugly receive the writing end of the pen and to sealingly enclose the point thereof, and an outer shell surrounding and secured to said inner shell and having an open end portion extending beyond the open end of the said inner shell for sliding, tight-fitting engagement with the pen, and an air vent in the portion of said outer shell which surrounds said inner shell, said shells defining an air passage therebetween connecting said air vent and the interior of said outer shell beyond the open end of said inner shell.

2. A closure cap for a fountain pen of the type having a tapered writing end, said cap comprising an inner shell completely closed at its sides and at one end thereof and having an open end adapted to snugly receive the writing end of the pen and to sealingly enclose the point thereof, an outer shell surrounding said inner shell and having an open end portion extending beyond the open end of the said inner shell for sliding, tight-fitting engagement with the pen, and an air vent in the portion of said outer shell which surrounds said inner shell, said shells defining an air passage therebetween connecting said air vent and the interior of said outer shell beyond the open end of said inner shell, means securing said shells in assembled relation, said last means including a pocket clip member having at least a portion externally of said outer shell overlying and substantially concealing said vent opening.

3. A closure cap for a fountain pen, said cap comprising a generally tubular one-piece outer shell closed at one end and open at its other end, a generally tubular inner shell disposed in said outer shell, a pocket clip member having an anchor portion extending through the side wall of said outer shell and into the wall of said inner

shell and an anchoring element disposed entirely within and concealed by said outer shell and secured in said inner shell and engaging said anchor portion for securing said shells and clip member in assembled relation.

4. A closure cap for a fountain pen of the type having a tapered writing end, said cap comprising a one-piece outer shell having a generally tubular side wall portion, a closed end wall integral therewith and an open end opposite said end wall, a generally tubular inner shell disposed in said outer shell with its inner end adjacent the closed end of said outer shell and its outer end terminating inwardly of the open end of said outer shell and dimensioned to sealingly receive the tapered end of said pen, a pocket clip member having an anchor portion extending through the wall of said outer shell and into the wall of said inner shell, and an anchoring screw extending through said anchor portion and threaded into the inner end of said inner shell for securing said shells and clip member in assembled relation and closing the inner end of said inner shell.

5. A closure cap for a fountain pen of the type having a tapered writing end, said cap comprising an outer shell having an open end adapted to slidably and snugly receive the writing end of the pen, an air vent in the side wall of said

outer shell leading to the exterior thereof, an inner shell disposed in said outer shell and having an open end portion inwardly of the open end of said outer shell providing an annular sealing seat for the end portion of the pen inwardly of the open end of said outer shell, said shells defining an air passage therebetween connecting said air vent with the interior of said outer shell beyond the open end of said inner shell, a pocket clip member having an anchor end-portion extending through said air vent and into the end wall of said inner shell, and an anchor screw extending through said anchor end portion and threaded into said inner shell for securing said shells and clip member in assembled relation.

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ROBERT W. RANDOLPH.

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